

What is claimed is:

1. A catalytic material comprising a catalytic component and a catalyst carrier for supporting said catalytic component; wherein the catalyst carrier contains atoms that can be able to form covalent bonds with said catalytic component.
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2. The catalytic material according to claim 1, wherein said catalyst carrier contains carbon.
3. A catalytic material comprising a catalytic component and a catalyst carrier which comprises carbon; wherein said catalyst carrier has a structure in which part of the carbon atoms is replaced with atoms that can be able to form covalent bonds with said catalytic component.
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4. The catalytic material according to claim 1, wherein said catalytic component is platinum or a platinum compound.
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5. The catalytic material according to claim 1, wherein said catalytic component is at least one member selected from the group consisting of platinum, ruthenium and their compounds.
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6. The catalytic material according to claim 1, wherein said catalytic component is at least one member selected from the group consisting of platinum, ruthenium, manganese, iron, cobalt, nickel, rhodium,
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palladium, rhenium, and iridium, and their compounds.

7. A catalytic material comprising a catalytic component and a catalyst carrier for supporting said catalytic component; wherein said catalyst carrier
5 further contains a catalytic component and at least one member selected from the group consisting of nitrogen atoms, oxygen atoms, phosphor atoms, and sulfur atoms.

8. A membrane/electrode assembly in which at least
10 one of an anodic electrode for oxidizing a fuel and a cathodic electrode for reducing oxygen has the catalytic material of claim 1 and a proton-conductive material and in which a proton-conductive electrolyte membrane is formed between said anodic electrode and
15 said cathodic electrode.

9. A fuel cell having an anodic electrode and a cathodic electrode formed via an electrolyte membrane, said fuel cell further comprising the membrane/electrode assembly defined in claim 8.

20 10 A fuel cell comprising an anodic electrode for oxidizing a liquid fuel, a cathodic electrode for reducing oxygen, and an electrolyte membrane formed between said anodic electrode and said cathodic electrode; wherein either said anodic electrode or
25 cathodic electrode or both have a catalytic material

in which a catalyst carrier for supporting a catalytic component and said catalytic component are contained and in which said catalyst carrier contains atoms that can be able to form covalent bonds with said catalytic
5 component.

11. A fuel cell comprising an anodic electrode for oxidizing a liquid fuel, a cathodic electrode for reducing oxygen, and an electrolyte membrane formed between said anodic electrode and said cathodic
10 electrode; wherein at least one of said anodic electrode and the cathodic electrode has a catalytic material which contains a carbon-containing catalyst carrier and a catalytic component, said catalyst carrier containing at least one atom selected from the
15 group of nitrogen, sulfur, oxygen, and phosphor atoms.